LAKE VICTORIA'S NILE PERCH FISH CLUSTER: INSTITUTIONS, POLITICS AND JOINT ACTION

IDS WORKING PAPER 87

Winnie V. Mitullah*

SUMMARY[1]

The collective efficiency model contends that joint action is essential for coping with new challenges. This paper discusses how enterprises in the Lake Victoria fish cluster operate, interact and address common challenges facing the industry. It suggests that the lack of effective institutions and the existing power relations explain the inability of the cluster to respond effectively to recent crises.

Both the Co-operative Society and the Fisheries Department are weak, whereas the existing welfare based associations merely exploit social capital in sub-ethnic groups. These groupings have not transcended welfare concerns into the economic realm, and their potential for taking strategic joint action is limited. The cluster's strongest joint action has been vertical, between one successful trader and one Industrial Fish Processor (IFP). This action saved the cluster from imminent collapse, but it did not result in the creation of institutions or organisations capable of dealing with other problems. The results uphold the collective efficiency model in the sense that they underscore the need for joint action in the face of new challenges. The findings also call for extension of the model to consider more explicitly the institutional framework that appears necessary for effective joint action to take place.

Key words: Africa, Kenya, clusters, collective efficiency, co-operation, institutions, fish industry.

* Research Fellow, Institute for Development Studies, University of Nairobi, Kenya. E-mail: IDS@nbnet.co.ke

1 INTRODUCTION

The catching and processing of Nile perch in Kenya has grown from a local activity into a major export industry. Fuelled by a seemingly inexhaustible demand for fish in developed countries, Kenyan Nile perch exports grew from just under US$ 1 million in 1980 to US$ 27.4 million in 1995. This remarkable performance comes from a cluster of factories, traders, and artisanal fishermen working in towns and villages along the shores of Lake Victoria. Like clustered firms elsewhere, they seem to have turned their geographic proximity into a competitive advantage in the export market. Nevertheless, all is not well in the industry. Fish supplies are diminishing and importing countries are becoming fussier about quality. Furthermore, the development of the cluster is uneven. Urban-based processors are clearly within Kenya's industrial sector, while fishermen and local processors operate with minimal infrastructure and artisanal methods. To remain competitive, Kenya's fish processors must deal with these and future challenges. Whether they can do so remains a question.

Two sets of benefits are believed to arise from clustering of producers (Schmitz 1995). The first are the efficiency gains that firms can reap simply by being located near each other. The second comes from firms acting together to achieve some desired end. Both have been viewed mainly through the lens of economics, as bringing about efficiency. Economics, however, cannot fully explain joint action or the lack of it. Decisions about acting together have clear political dimensions that cannot be ignored. Political institutions and the politics of economic and social institutions influence whether joint action happens and what form it is likely to take.

Using data from two groups of cluster firms, this paper explores the links between the challenges facing the cluster and the politics of joint action. This section gives a brief introduction to the fish industry in Kenya. Section 2 identifies fishermen, traders, and processors as the industry's main actors, examines the organisation of the industry, and traces four separate market channels through which the Nile Perch (NP) pass on their way from Lake Victoria to the final purchaser. This section also outlines the conceptual framework for understanding the dynamics of institutions and joint action. Section 3 discusses fishermen, traders, and the institutional framework of Uhanya Beach, one of the cluster's supply beaches. Section 4 discusses the large-scale fish processors and their link with Uhanya, while section 5 analyses the two challenges facing the cluster. The concluding section reflects on the collective efficiency model in the light of the experiences of this cluster.

2 THE KENYA FISH INDUSTRY

2.1 Global Fish Industry

The global fish industry has been expanding for several decades, and has emerged as a major industry world-wide. Demand from Northern Hemisphere consumers has spawned an industry characterised by heterogeneity of organisational forms and diversity of activities and actors. Industrial firms dominate export processing, but small scale harvesting, processing and marketing activities continue. There are about 15

million fishermen in the entire world among which small scale (artisanal) accounts for between 13 and 14 million. Secondary activities and associated industries provide employment to between 26 and 28 million people (ILO 1988).

The industry is organised in clusters. It is labour intensive, applying largely simple methods and techniques, which are continuously being improved (Platteau 1989). Rising living levels in both developed and developing countries and the high income elasticities have aroused huge demands for fish products, resulting in commercialisation of the industry and the gradual transformation and subordination of the traditional management systems.

2.2 The Fish Industry in Kenya

Fishing is an important economic activity in Kenya which provides both employment and income to a significant percentage of the local communities. Kenya's fish industry resembles the global industry described above. The dominance of foreign demand, the persistence of artisanal fishing and processing and the key role of industrial processors feature prominently in Kenya as in the industry world-wide. In Kenya, however, the local market is particularly weak, and perhaps more importantly, institutions and organisations needed for a competitive industry have either failed to emerge or have been weakened by corruption and malpractice.

Over the last fifteen years the aggregate landings of fish from inland waters have increased. Landings from Lake Victoria alone contribute for about 98% of production from Kenya inland lakes, and constitute about 93% of all the fish landed (Kenya 1997). Coastal and deep-sea fisheries, and fish farming where fish is raised in artificial ponds and dams scattered around the country, make up the balance. Some fish is sold fresh while a significant proportion is processed for later consumption. Artisanal fish processors (AFP), prepare dried and smoked fish, mostly for local market, while industrial fish processors (IFPs) freeze or chill fish for export and, to a much lesser extent, for consumers in Kenya's urban areas.

2.2.1 Size and characteristics of industry

The Kenyan small scale fishing industry has been active for centuries. Its incorporation since 1980 into industrial processing has not stifled it. On the contrary, artisanal fishing and trade go on within and around all the waters in Kenya. Among these, Lake Victoria claims the highest percentage of catch (table 1.1).

In 1980 the NP catch was 4,310 metric tonnes, or 8.9% of the total catch. In the same year Nile perch accounted for only 2.3% of the total marketed value fish caught in Kenyan waters, and 12.6% of the value of the Lake Victoria catch. By 1995, the total catch had approximately quadrupled to 193,789 metric tonnes. The NP catch, at 102, 546 metric tonnes, was amazingly 24 times its 1980 level and in 1995 accounted for over half (52.9%) of the total. The market value of the NP catch rose almost as dramatically, from Ksh. 1,725 per tonne in 1980 to 32,332 per tonne in 1995. This increase in value, at 1874%, was well ahead of the general increase in prices over the period, which we estimate to be 800%. The 1995 NP catch was worth 3.3 billion shillings, or 63.7% of the total fish value.

Table 1.1: Fish Landings and Market Values

	1980	1985	1990	1995
Total Fish Quantity (Metric Tonnes)	48,218	105,973	201,778	193,789
Lake Victoria Fisheries	26,914	88,589	185,101	181,888
Nile Perch	4,310	53,011	57,262[2]	102,546
Value Ksh. '000[1]				
Total	316,902	311,770	7,231,820	5,204,309
Lake Victoria	58,805	190,550	1,532,964	4,678,140
Nile Perch	7,434	92,290	687,167[2]	3,315,503

Notes: [1] Values are stated in current terms. Prices in 1995 were approximately eight times their 1980 level.
[2] Figures for 1991
Source: Compiled from various Annual Statistical Bulletins, Fisheries Department, Statistics Section

The Nile perch (*lates Niloticus*) is not a native species in Lake Victoria. It was introduced by the colonial government in 1954, but did not become important until the mid 1980s, when the Nile perch hit the export market. The introduction of the Nile perch was an effort aimed at offsetting falling supplies of other types of fish. Kenyan Nile perch is exported by IFPs mainly to Europe, Middle East, Australia and Japan and to a limited extent U.S.A. In 1995 a total of 12,052 metric tonnes of fish and related products were exported, earning Kenya Ksh. 1.4 billion in foreign exchange (Kenya 1995). In 1996 one of the major processors exported fish to European Union (EU) valued at Ksh. 519,626 million while exports to Israel were 4,109 million and Japan 5,004 million (Danner 1997). While these figures are not representative of the industry as a whole since most processors have comparatively lower export earnings, they are indicative of the levels that can be reached by aggressive and efficient exporters.

The availability of NP for export has transformed Lake Victoria fisheries from a local into an international resource. The number of fishermen and traders has increased dramatically. In 1979 there were only 16,000 fishermen on the Kenyan shores of the lake. By 1993 the number had increased to 82,300 (Kenya 1994). Some of the fishermen and traders operating in Lake Victoria cluster hire professional fishing crew and managers to fish for them, while others are traders who travel across the lake to buy fish in Uganda.

The opening of the global market and increased NP catch has been accompanied by the establishment of processing factories, that have changed industry organisation. The small scale traders and artisanal processors who dominated the industry until the early 1980s have become small players trading mainly within the cluster and surrounding areas. Industrial processors have become the industry's driving force. They collect fish from the beaches using refrigerated trucks, buying through medium and large-scale traders who also act as agents.

Agents of large-scale fish processors make all sorts of arrangements with the fishermen. They offer credit, supply gear and purchase fish in the lake from special transport vessels (Jansen 1997). A study of the

political economy of the NP marketing chain in Tanzania, shows that the factories, operated by IFPs sponsor fishermen by providing partial sets of nets, and occasionally engines. The repayment is made in delivered fish. Such support is largely directed to well established fishermen with proven records of fish supply (Gibbon, 1997). In Kenya this relationship is just beginning to emerge and as in Tanzania is limited to well established fishermen and traders.

The role played by agents of large-scale fish processors in the industry should be a key function of fishermen's co-operatives. The co-operative movement is important in Kenya. As elsewhere, co-operatives are formed by members who have a common purpose. Ideally, membership enables individuals to face common challenges and exploit opportunities. In most fish clusters, fishermen have formed co-operative societies which should be responsible for marketing fish and ensuring that the interests of fishermen are protected, but as will be discussed in this paper, the performance of fishermen's co-operatives differ with most of them hardly performing their mandated functions. In view of the ineffectiveness of co-operatives, some fishermen have formed separate fishing groups to cater for their interests.

3 CLUSTERS, COLLECTIVE EFFICIENCY AND THE INSTITUTIONAL FRAMEWORK

Recent international literature has developed the collective efficiency model to explain the success of exporting clusters in developing countries (Schmitz 1995, Nadvi 1996, Rabellotti 1997). This model would seem to be applicable to the Lake Victoria cluster. Most of the empirical evidence supporting the model has, however, come from Latin America and Asia, areas with institutional frameworks that differ in many respects from that of Kenya. Such differences suggest that understanding the dynamics of the Lake Victoria fish cluster may require a more comprehensive examination of political, economic, and social institutions than is usually included in the collective efficiency approach.

3.1 Clusters

Although clusters have been defined in various ways, this paper adopts Schmitz's definition of a cluster as a group of producers belonging to the same sector and operating in close proximity to each other. This differs from Porter's definition which uses the term to designate a group of firms engaged in similar or related activities within a national economy. Whereas for Schmitz geographical proximity is a defining characteristic, for Porter it is not. However, Porter acknowledges that the relationships within an industry cluster benefit from firms' being located near one another (Porter 1990; Schmitz 1995).

3.2 Collective Efficiency

The collective efficiency model relates cluster performance to two groups of variables that arise when firms locate near one another: the external economies that come about almost automatically, and the positive joint action that clustered firms may choose to take. The collective efficiency approach draws on two streams of

literature: the economic literature on external economies rooted in the work of Alfred Marshall (1890), and the social capital literature which argues that people can be better off if they co-operate on common problems (Coleman 1990, Putnam 1993).

3.2.1 External economies

Writing about the industrial districts of the nineteenth century Europe, Marshall (1890) observed a number of benefits accruing to firms simply by reason of their geographical proximity. He named these external economies. The essential feature of an externality is that the effect produced is not a deliberate creation but an unintended or incidental by-product of otherwise legitimate activity (Mishan 1971). Nadvi (1996) calls it *passive* collective efficiency. It is important to note that external effects are not always beneficial. Mainstream economics has, in fact, tended to emphasise the negative consequences of externalities.

Four main types of external economies in enterprise clusters have been identified: labour market pooling, intermediate input effects, technological spillovers and market access (Schmitz 1997; McCormick 1998). Labour market pooling refers to the process by which skilled labour becomes a major locational advantage to clustered firms. Intermediate input effects are the external economies that result from the development of specialised suppliers and service providers. Technological spillovers involve the diffusion of technical know-how and ideas among firms in the cluster. Market access, which may be the most widespread externality, refers to a cluster's ability to attract buyers of its products.

Observers have argued that external economies on their own are not enough for realising progress and growth. There is need for joint action, which focuses not only on individual enterprise or incidental external effort, but on the deliberate inter-firm linkages and networks.

3.2.2 Joint action

Joint action, the second prong of collective efficiency, occurs whenever two or more firms take action together. Joint action, in contrast with external economies, requires conscious action and has, therefore, been called *active* collective efficiency (Nadvi 1996). Schmitz has isolated four categories of joint action in clusters, based on two dimensions: the number of co-operators and the direction of co-operation (Schmitz 1997). McCormick provides a good summary of these forms of joint action:

> Joint action may be bilateral or multi-lateral. In bi-lateral co-operation, two firms work together as, for example, when they share an expensive piece of equipment. In multi-lateral action, groups of firms join together, often in association or other organisations, for some common purpose. Joint action may also be vertical or horizontal. Vertical co-operation happens when firms involved in different stages of the production-distribution chain work together. Horizontal joint action refers to collaboration between/among competitors (McCormick 1998).

Even successful clusters go through difficulties, and an important factor in their success is their ability to cope with crisis. Schmitz argues that responding to opportunities and crisis requires shifting gears, from passive to active collective efficiency (Schmitz 1997). Locke (1995) has reached a similar conclusion. He states that industries situated in localities with well developed associations and interest groups capable of aggregating diverse interests, mediating industrial conflict, and defusing information, adjust more successfully to changing world markets than those without developed associations and interest groups.

The collective efficiency model has highlighted the importance of joint action in the development of clusters but the approach has to date provided an incomplete framework for understanding the dynamics of joint action. It cannot, for example, explain how and why joint action is taken. The model also lacks the power to identify the factors necessary for ensuring that joint action is taken and its results are sustained.

The motivation for joint action may shape its outcome. Barr (1998) for example, found that networks aimed at reducing uncertainties have a positive effect on the entrepreneur's welfare, but little or no effect on enterprise performance. In contrast, networks that focus on *economic aspects* and provide a high degree of access to information about the world are associated with growing firms. This implies that the many existing networks based on informal associations operating in many parts of the globe may not enhance growth as hypothesised in the collective efficiency model.

Short-term joint action addresses cluster issues on an ad-hoc basis relying on individuals and groups who may be willing to be part of the action being pursued. While useful, this form of joint action may not offer the sustained benefits available from joint action which has been institutionalised into systematic and enduring organisational forms.

Applying the four categories of joint action to specific cluster, yields useful information about the economic linkage underlying the action, but it reveals very little about what prompted it or its prospects for continuing. Understanding these requires introducing a new variable into the model. It is to this that we now turn.

3.3.3 The institutional framework

Recent theorists have stressed the importance of the institutional framework in facilitating or blocking collective action. Institutions are viewed as prime vehicles through which people seek to change undesired conditions (Esman 1992; Thomas et al 1992). Contrary to Olson's (1965) view that it is generally not in peoples' individual interest to pursue joint action, Coleman (1990), Putnam (1993) and others contend that people will be better off by acting co-operatively.

The notion that people will be better off by acting co-operatively has given rise to the term 'social capital' which is used to describe the positive value of social relations for facilitating certain activities including the conduct of business (Coleman 1990, Putnam 1993, Bazan and Schmitz 1996). Putnam points out that social capital refers to features of social organisation, such as trust, norms, networks, that can improve the efficiency of society by facilitating co-ordinated action'. He further notes that voluntary co-operation is easier in a community that has inherited a substantial stock of social capital, in the form of

norms of reciprocity and networks of civic engagement (Putnam 1993:167). The nature and extent of social capital can be used to explain differences in the performance of organisations and institutions.

Groups, especially large groups, are frequently plagued by free riders and defections. In the classic free-rider problem there is an imbalance between the costs and benefits of joint action that encourages group members to reap benefits without contributing to the group effort. Defection - opting out of an agreed course of action - does not happen as often as might be expected from game theoretic predictions. Putnam attributes this to the existence of social capital in the form of institutions that facilitate co-ordinated action. Putnam argues that a strong society characterised with norms of reciprocity and dense horizontal networks of civic involvement gives rise to a strong polity and economy and, conversely, that a weak society will result in a weak polity and economy (Putnam 1993). Applying this reasoning to industrial clusters, we can hypothesise that a cluster characterised by social capital embodied in horizontal networks of civic engagement and norms of generalised reciprocity will perform well, and that a cluster lacking such social capital will be weak and prone to failure.

Although, Putnam has highlighted the importance of social capital, he notes that like other public goods, social capital tends to be under-valued and under-supplied by private agents. Trustworthiness has been noted to lubricate co-operation within institutions. Putnam's (1993) argument that the greater the level of trust within a community, the greater the likelihood of co-operation, can, we believe, be extended to industrial clusters.

Institutions such as trustworthiness and other norms of behaviour are embodied in organisations. Organisations are groups of individuals bound by some common purpose to achieve objectives. They further interests of their members and their evolution is influenced by the institutional framework. In turn they influence how the institutional framework evolves (North 1990). Co-operation becomes institutionalised when co-operators develop set ways of interacting, approaching problems, and dealing with other groups.

Organisations have different origins, and a distinction can be made between those that arise 'from above' and those from 'from below'. This distinction is important because an organisation's establishment and history shape its ability to enable or disable taking joint action. Organisations that arise 'from below' are often initiated and managed by key stakeholders with an aim of addressing issues that concern them. They facilitate processes relevant for taking joint action and have been viewed as important for growth.

On the other hand, those 'from above' are initiated largely by individuals or groups who are above the proposed organisation in the hierarchy of power and/or authority. They may not identify with the issues being addressed and, worse, may have their own agenda which conflicts with the achievement of members' goals; in some cases they even destroy joint initiatives, especially those which run contrary to their interests. This can force organisations to adopt short-term objectives and to take ad-hoc joint action.

The second distinction among organisations, which appears useful in this context, is that between welfare and business associations. Adapting Barr's (1998) notion of welfare-oriented networks to more formal associations, we note that the main purposes of welfare associations are to enhance present welfare and/or to ensure against risks of future events such as death or serious illness. Examples include rotating

savings and credit associations (ROSCA), burial societies, and welfare associations common throughout the developing world. Such welfare associations which mobilise social capital for future joint action and insure against present risk or future losses, have often been ignored. Their importance in the development of Sinos Valley cluster has been pointed out (Bazan and Schmitz 1996). Their role in the development of the Lake Victoria fish cluster will be explored in section 5.

To summarise, this section has highlighted the importance of joint action in the development of clusters. However, in explaining how and why joint action is taken and identifying the factors necessary for ensuring that joint action is taken and sustained, explicit consideration of the institutional framework is important. Institutions can facilitate the process by which members of a cluster interact among themselves and with those outside the cluster. Through organisations which owe their establishment and history to key stakeholders, individuals are able to exploit social capital for co-operation. Indeed, even where appropriate institutions exist, their operation can be blocked by missing, ineffective, or inappropriate organisations. Organisations whether they were formed 'from above' or 'from below', whether they are welfare or business oriented, have the potential to facilitate joint action. Whether they do so or not is the focus of the empirical investigation which follows.

4 LAKE VICTORIA FISH CLUSTER

The Lake Victoria fish cluster covers the Kenyan shores of the lake and includes about 65 fishing villages scattered in six districts and the lakeside town of Kisumu. For purposes of the research, we identified what we believe to be a representative segment of the cluster: the large-scale industrial fish processors together with one of their supply beaches, Uhanya Beach.[2]

In total, there are twenty-two industrial fish processing firms in Kenya located mainly around the lake shore. At the time of the research there were fifteen processors operating within our cluster. Originally they were mostly based in Nairobi and Mombasa, but the increase in demand and the opening of the foreign market has pushed a number of firms to relocate on the shores of Lake Victoria with majority in Kisumu. All of them are export oriented, contribute to employment generation, and have invested in new plant and equipment.

4.1 An Overview of the Industry

The cluster has several different market channels or transaction regimes for full-size[3] and under-size perch which are summarised into the four main regimes shown in figure 1.

Figure 1 Transaction Regimes

Full-size Nile Perch			Under-Size Nile Perch
I	**II**	**III**	**IV**
KF UF	**KF UF**	**KF UF**	**KF KT**
KT	**KT**		
Co-operative Agents	Co-operative Agents	Co-operative Agents	Small scale Processors
refrigerated trucks	refrigerated trucks	small trucks, pickups	KT in bicycles, matatus, buses
large factory	large factory	markets in Nairobi and large towns Hotels and Restaurants	markets within region, western, other parts of Kenya
Foreign customer [frozen and chilled fish]	Domestic retailer [frozen fish]	Domestic retailer [fresh fish]	Domestic retailer [dried fish]
Codes: KF = Kenya fishers UF = Uganda fishers KT = Kenya traders			

The four regimes, are different but related, and all except the fourth regime are linked to the final destination of fish (processing factories, national and export markets) through agents.

Regime I consists of both Kenyan and Ugandan fishermen who fish both in Kenyan and Ugandan waters. They use the Kenyan fish traders as intermediaries to market their fish to IFPs. The industrial processors send insulated trucks loaded with ice to collect fish from the landing beaches. Subsequently fish is processed into frozen or chilled fillets and exported to foreign markets.

Regime II is equivalent to the first except for the final destination which is domestic retailers.

Regime III has both Kenyan and Ugandan fishermen selling their fish directly to the co-operative shed, where it is purchased by traders using small trucks and pickups. The fish is delivered to hotels, restaurants and markets in major urban centres of Kenya.

Regime IV is composed of Kenya fishermen and traders who sell both under-size and fish rejected by IFPs to artisanal fish processors, without necessarily going through the co-operative shed. The processors use various methods, including smoking, frying and drying for processing before selling their product to both small and medium scale fish traders within the region (division, district, province) and other provinces of Kenya.

Although all the above regimes are important to Uhanya, the first two are crucial to the cluster's development and ultimately to Kenya's industrialisation. They link the cluster to both the (non-local) domestic and international markets. The first two regimes handle about 90% of the average 25 tonnes of fish landed in Uhanya every day. Only 10% goes to the domestic market as fresh or artisanally processed fish. This paper limits itself to the first and second regimes, which provide a good ground for analysing the challenges facing the fish cluster and how they are being addressed.

4.2 Uhanya Beach

By the early 1990s, Uhanya Beach had been transformed from a tiny village serving a purely local market to an active rural centre with a population of 2,000 to 4,000 depending on the season. The Nile perch boom during the mid eighties marked a major turning point in Uhanya. The beach changed drastically, and through IFPs became linked to international markets.

Fishermen and traders operate with little infrastructure and few services. There is an access road and a telephone booth. Although the road is not paved, it is usually in good condition. One public telephone booth installed in 1996 serves the entire population. The telephone service and the Fisheries Department Radio Call are the only airwaves communication available. The telephone booth service has played a key role in linking fishermen and traders with distant markets. Traders are able to make business contacts with both customers and external suppliers. Plans for electrical power supply to the division were in an advanced stage[4], although Uhanya falls only in the third phase of the project.

Apart from the above, fishermen and traders in Uhanya operate within an environment lacking most infrastructure and services. The beach has no electricity, banking, financial, postal or health facilities. Sanitary services are either lacking or are very poor. For postal and health facilities residents have to rely on services available four kilometres away, whereas the nearest banking facility is located at a distance of twenty-five kilometres.

Uhanya has a cross section of businesses revolving around the main fishing activity. The majority of artisanal fishermen and traders are poor and chose the fish trade because of its low capital requirement. Most fishing enterprises are small and undercapitalised. They are operated largely by owner managers, who like most small-scale entrepreneurs, are mainly concerned with the short-term goal of earning sufficient income to cover their families' basic needs.

Out of three hundred and fifty fishermen registered in Uhanya, only about seventy operate on full time basis. The rest are occasional fishermen and hired crew. Almost all fishermen use non motorised boats and standard fishing gear technology including: beach seine, mosquito seine, gill net, set net, long line and hand line. Only fishermen who have turned into traders have motorised boats which they use for collecting fish from non motorised fishermen from other Kenya beaches and Ugandan Islands. The fish is delivered to Uhanya for transportation to fish processing factories.

The next most important activity in the cluster is trading in fish. Most trade activities are small and run by owners. Most were started in response to the NP boom of the mid eighties. Since the boom most traders have worked continuously in the fish industry. Most of them trade both in Uhanya and within the region, while others trade beyond the region. Some of them use public transport, while others own pick- ups and are able to transport fresh fish to distant markets, including the capital city, Nairobi.

Fishing and the fish trade have attracted a number of enterprises which rely on and service the fish industry. Although a majority of residents of the cluster concentrate only on one business activity, a significant percentage engage in other activities. Most of the other activities do not directly fall within the fish industry but provide relevant services to the industry. They include: shop keeping, hotel/kiosk

businesses, sale of new and *mitumba* (used) clothes, transporters, teachers, tailors, hair dressers and sale of consumer products (Mitullah 1996).

The fisheries department is the arm of the government located at the beach. Through the Fisheries Act, the department should ensure that enterprises operate with licenses and fishing regulations are observed in order to ensure sustainable utilisation of water resources (Republic of Kenya 1989). The department has performed poorly in satisfying these tasks. Its failure to enforce fishing regulations, exposes the industry to depletion of fish through illegal fishing gear. A number of fishermen use net sizes not permitted by the fisheries department. Trawlers are also not allowed within the Kenyan waters, but a number of them are known to be operating. The department has also performed poorly in ensuring security for fishermen in the lake.

Uhanya has three types of membership organisations: Yimbo Fishermen Co-operative Society (YFCS), Uhanya Beach Organisation and several welfare associations. These organisations facilitate multilateral and bilateral links among fishermen and traders. Membership of fishermen and traders in these organisations should provide a basis for dealing with the cluster's most pressing problems, but as will be discussed in the next section, this has not been the case.

Bilateral links such as lending fishing gears and equipment, marketing, sharing fishing knowledge, workers and joint purchase of inputs were found to exist among fishermen. Among traders two firms reported having had a bilateral link, but the link had broken down. A major vertical link which exists between a successful trader and three IFPs is discussed in detail in section 5. Although most inter-firm relations are between firms of the small size, the ones which have made a big difference to the cluster are between the small fishermen and IFPs through the successful trader.

Yimbo Fishermen Co-operative Society is an umbrella body for all fishermen and most fishermen belong to the association, although they have little regard for it. It is an organisation created 'from above' for fishermen. An attempt to establish a parallel organisation conceptualised 'from below' to serve the interest of local fishermen was thwarted by interested parties - YFCS, Ministry of Co-operative Development and industrial processors. They ensured that the grassroots association did not take off despite the fact that the fishermen had identified their economic interests and the gains entailed in forming a parallel grassroots association[5]. The co-operative movement in Kenya is tightly controlled by the concerned ministry, and unless absolutely necessary, parallel co-operatives focusing on the same interest in the same area can not be registered with the ministry. The procedures involved in winding up a co-operative and beginning a new one are also long and cumbersome.

The co-operative has about 1,000 members, drawn from Uhanya and eight other surrounding beaches. However, only 580 members were active during the survey. Although the co-operative manages a total of nine beaches, Uhanya is the main beach for the society in terms of size, fish landings and income.

The Co-operative Society is responsible for marketing fish for members, price setting, quality control, security in the lake and beach management. Although these are the functions of the co-operative, the fishermen held activities of the co-operative in low regard. They noted that the society was not supportive

and could hardly provide any support in the areas of fishing gears, pricing, controlling the use of wrong fishing gears and the insecurity in the lake. Instead they seemed only concerned about the daily commission on fish landings, which earns them a commission of fifty Kenyan cents on every kilogram of fish sold.

A probe on price setting and quality control showed hardly any role for the co-operative. A total of 95.5% of respondents indicated that the co-operative played no role in price setting, while 89.5% indicated that it played no role in quality control. However, the co-operative was seen to play some role in retailing fishing gear (65%), taking commission on sales (25%) as well as giving dividends and bonus to members (10%).

The co-operative had attempted to deal with pricing but was unsuccessful, and did not pursue the issue any further. Fish pricing is politically charged and the IFPs use all their influence to ensure that the prices remain at a level acceptable to them. In one case their lobbying reversed an increase of commission which the YFCS had negotiated with the government. The government does not play any role in setting prices of fish, but has to ratify the commission taken by the co-operative per kilogram of fish sold.

The YFCS officials indicated that they had experienced a number of problems, the major one being middlemen. The latter work as agents of the large scale fish processors, set prices and generally have a comparative advantage in fish trade. The co-operative attributes the dominance of agents and large scale fish processors to the lack of cold storage facilities at the beach. This makes the co-operative unable to control members and other actors as far as sale and pricing of fish is concerned.

The weakness and failure of the YFCS and the fisheries department to address the common issues within the cluster has left the interested groups and/or individuals to adopt their own methods of responding to issues which largely cut across the cluster. This has resulted in dominance of segmented joint action taken by different players. This is reflected in the activities of the key actors: IFPs, traders and fishermen. Both the IFPs and successful trader(s) have kept the cluster afloat by sourcing fish from Uganda and improving landing facilities; whereas the fishermen continue to deplete the resource by catching ‘baby perch’ as they ignore basic fishing regulations.

The second membership organisation at Uhanya is the Uhanya Beach Organisation. All residents of the beach are expected to be members, although no membership list exist. Beach leaders are elected by residents of the beach but the organisation is extensively influenced by the government provincial administration. It oversees social and security matters within the beach, by ensuring that the operations of the cluster are smoothly running and the welfare of the residents is not threatened. The association assists beach residents in responding to their welfare needs and most residents, including fishermen valued the association more than the co-operative society.

A total of 63% of fishermen and traders also belong to welfare associations. Most of these associations are locational/clan based welfare associations which provide safety nets for entrepreneurs and their businesses. These institutions assist members especially during emergency times such as sickness or funerals. They occasional provide minimal funding for resuscitating and keeping businesses afloat. Emergencies are potentially devastating to people operating on the edge of poverty. Kenya lacks

government - sponsored welfare provisions, and insurance is generally available only to the rich, so such institutions are extremely important to the survival of fishermen, traders and their families. They have managed to sustain small scale businesses such as artisanal processors, which have been under constant threat from the intervention and operations of IFPs.

4.3 Industrial Fish Processors

Kenya has 22 fish processing factories: 15 are located around the lake, 4 in Nairobi and 3 in Mombasa. What follows is based on interviews with a total of 9 firms, 7 at the lake and 2 in Nairobi. Of the fifteen registered factories around the Kenyan lake shore, only 12 were in operation during our 1997 survey. These factories process NP with a few filleting tilapia for both foreign and domestic market.

4.3.1 Size and ownership

The industrial processors provide employment and income to Kenyans. Of the nine firms we interviewed in Kisumu and Nairobi, five had between 35 to 100 workers, two had 101 and 200 workers, one had over 200 workers and one had closed down. The total number of workers engaged in industrial fish processing countrywide is estimated as 2,400. Most of them perform filleting and packaging activities and are largely casual workers with neither job security nor long-term benefits.

Most of the fish processing factories are owned and managed by Kenyan Asians.[6] The few African entrepreneurs who have ventured into processing seemed not to be doing well. During the survey, one of the most modern factories owned by a group of African partners was under receivership. Another owned and managed by a group of Africans who had previous work experience in other processing factories, was just beginning operations, while a third one was struggling to survive after an incident in which a fellow African reneged on a contract. Interview with the firms, especially the African entrepreneurs revealed the closed nature of the processing business and the importance of having the right foreign contacts for marketing.

4.3.2 Production capacity and fish supply

The NP has several products, the main one being fillet, comprising 30 - 35% of body weight of medium size NP. Some factories which export to countries that require comparatively low quality, extract 35 to 50%. The by-products of the NP include: swim bladder (maws), frames (skeleton), fat, skins and trimmings. Among the by-products, the frame has been popular as a domestic dish. However, extraction of fillet up to 50% has affected its quality for local human consumption. Furthermore a high percentage of fish frames are now sold to fish-meal factories.

All the factories interviewed were running below their production capacity. Whereas their capacities ranged between 10 and 75 tonnes of whole NP per day, a majority were processing less than 10 tonnes per day with the highest handling between 10 and 12 tonnes a day.[7]

The main reason for operating below capacity was given as inadequate fish supply. Some factories

indicated that during low season they have to close their factories, whereas others revealed that they obtain additional fish from their sister companies in Uganda and Tanzania. One factor contributing to smaller fish supplies is the lack of cold storage facilities on the boats and at the beaches, which leads to rejection and wastage of fish caught.

4.3.4 Competition

Competition among the industrial fish processors for fish supply is intense, but the lack of organisation among fishermen has made them unable to command better price for their scarce resource. To survive the competition the processors have to develop good relations with key actors at the beaches. They provide assistance to their agents and fishermen's co-operatives in different forms. Limited support to agents and fishermen include: credit, ice, fish containers and transport. The ice supplied only serves those who have contracts with the IFPs and not other fishermen and traders. The amount of support provided is largely mutual and based on the trust the two partners develop. Some processors noted that there are cases when they are disappointed with the agents but can hardly take any serious action, except breaking the relationship.

The most successful trader/agent[8] had close ties with the IFPs and was the main supplier of three IFPs. Even these processors did not seem to have clear understanding of the entrepreneur's range of activities. Whereas one IFP commended him for having built a modern *banda* (fish delivery shed) another boasted of having constructed the same *banda* in close collaboration with the entrepreneur.

IFPs prefer to deal with agents rather than fishermen's co-operatives. Interviews with the co-operative officials revealed that most IFPs view the co-operative as a threat to their business and have played a role in making fishing co-operatives not work. Strong co-operatives are able to negotiate prices and also deliver fish to the factories, thereby reducing the number of intermediaries. Only four strong co-operatives (Bunyala, Samia, Wichlum and Dunga) exist within Lake Victoria region (Akatch 1996). They are able to deliver fish to the factories and are less manipulated compared to agents who have to rely on IFPs transport. It is the inability of fishermen through the existing co-operative to preserve fish due to lack of cold storage which exposes them to manipulation by IFPs. Since fish is a perishable commodity, most traders and fishermen have their hands tied and have to sell fish at a price dictated by the IFPs and their agents

Although each IFP seemed to have its own network of foreign contacts, they have to protect their markets, since global competition is intense. Kenya fish competes with fish from many other countries. The key factor in this competition is quality. Fears about quality of Kenyan fish have led to two crises in the industry. These are discussed more fully in section 5.

4.3.5 Co-operation

Unlike in Tanzania, where IFPs have associations, the Kenyan IFPs seem to avoid each other. Despite common problems and geographic proximity, IFPs are secretive, distrust each other and have no sectoral

association. They seem to rely mainly on their foreign contacts for information about world markets, and on their agents for news of the beaches. In isolated cases where IFPs know each other they informally consult, especially when confronted with serious problems, for example, diminishing fish supply and quality control issues.

The secretiveness of the fish processors emerged clearly during the interviews. One processor noted that ‘each firm wants to keep its secrets and make profits in their own way’. Another observed that ‘jealousy keeps processors apart - no true friendship - no trust’! Another processor observed that, whenever he wants to know the going prices he confides in his drivers and agents. In exceptional cases, he may call a fellow processor, whom he relates with beyond business to ask about details of the market, more specifically pricing. The same processor noted that when his supply of fish dwindles, this can mean a general shortage or his competitors paid more. He gave examples where fellow processors lied about the actual amount they were paying for wet fish, only for the cheated colleagues to discover too late when they had nothing to process.

4.3.6 Summary of issues

This section has shown that fishing and fish processing together form a major industry in Kenya. Most operations take place in a large cluster that covers the Kenyan lakeshore. Included in this cluster is the town of Kisumu, which alone has 12 fish processing plants. This research focused on industrial fish processors and one supply beach, the Fisheries Department of the Government, and several local membership organisations.

Industrial fish processors produce frozen and chilled fillets, nearly all which are exported. The largest and most important market is Europe, but factories also export to Asia and North America. The processors obtain their supplies of raw fish from traders and agents operating at the landing beaches. In theory, these intermediaries buy fish from the co-operative, which takes a commission on each kilogram of fish sold. In reality, however, individual fishermen and traders who land fish purchased in Uganda, sell directly to the traders and agents supplying the industrial fish processors.

Most fishermen use artisanal techniques and boats propelled by sails and paddle. Traders who venture into Uganda waters have motorised boats. The limited supply of ice for preserving fish means that fishermen must sell their catch immediately. Fishermen are, therefore, price takers in their market.

There are three types of membership organisations for fishermen: the co-operative, the Beach Organisation, and welfare associations. Most fishermen belong to all the three types. Most view the co-operative, which is supposed to serve as a marketing organisation and a forum through which fishermen can address common economic problems, as ineffective. The Beach organisation, which deals with security and management of the beach, is viewed more positively. The welfare associations are vehicles through which clans, persons from the same village, and other sub-ethnic groups can save and/or receive help at times of bereavement or illness.

The industrial processors have no organisation through which they can address common problems. Factories apparently operate in isolation from one another. What dealings they do have with one another are characterised by mistrust. In the midst of lack of an umbrella association and mistrust among IFPs and loose organisation among fishermen and traders, the Lake Victoria fish cluster faces a number of challenges which have to be addressed.

5 A CLUSTER UNDER CHALLENGE

The Lake Victoria fish industry has faced two major crises in recent years. Responses of the key actors (successful traders, non motorised fishermen, industrial processors, YFCS and Fisheries Department) have been different in each case, but it is our contention that, in both, the eventual 'solution' depended as much on political as economic variables. The five actors are not homogenous in origin, both YFCS and the Fisheries Department are organisations created 'from above'; whereas the other actors are individuals operating their own enterprises and acting largely for their own good.

The origin of actors has influenced how they have responded to the challenges facing the cluster. The two organisations created 'from above' have hardly acted to the benefit of the cluster. They have failed to address the problem of falling fish supply, and only responded to the EU shock because it directly threatened their enterprises. On the other hand, the efforts of individual actors are largely personal and do not exploit the benefits of collective action.

McCormick (1998) analyses the cluster's external economies and finds them generally weak. The strongest externalities in the cluster are market access for fishermen and traders, and intermediate input effects for industrial fish processors. There is little benefit from the pooling of labour. Even the building of the new banda at Uhanya seems to have had few spillover effects. The possibility of taking joint action on issues of common concern might be the cluster's major benefit.

5.1 Challenge No. 1: Falling Fish Supplies

Falling fish supply has been an issue in the Lake Victoria fisheries since the early twentieth century. However, accurate stock assessment on size, structure, growth and mortality is hardly available (Geheb 1997). The colonial government addressed the issue using several methods (Okedi 1995; Andersen, 1961; Fryer, 1960), including bringing in exotic species to complement existing stock. The latter resulted in the introduction of NP, viewed as both a response to the failure of improved fishing methods and enforcement of regulatory measures, and a desperate attempt to prevent a collapse of the fishery (Geheb 1997:68).

The NP which has become a dominant catch and most remunerating has triggered competition for fish and attracted many actors, including absentee fishermen, who employ skilled managers to organise fishing operations for them. Traditional fishermen using rudimentary tools and gears cannot effectively compete, while those trading in fish have to forge relationships with IFPs in order to compete. The commercialisation of the industry has transformed both the position of fishermen and small scale community-based fish

processors and traders around the lake. The stiff competition for raw NP has pushed up prices and indirectly contributed to a reduction in fish supply.

A number of reasons have been given for the diminishing catch. They include: over-fishing, illegal fishing gears including trawlers which destroy nursery grounds, the NP poaching on most small fishes, and water hyacinth weeds spreading and interfering with the water system (O'Riordan, 1996). It is not possible to isolate the contribution of each of the variables to the diminishing fish catch, although illegal fishing gears seem to have a significant impact on fish supply. While isolated cases exist of IFPs using trawlers, which are illegal in Kenyan waters, illegal gears are mainly used by artisanal fishermen who do not have motorised boats for going deep into the lake. Many artisanal fishermen use non-motorised boats and small net-mesh, which results in catching 'baby perch'.

Over-fishing which is another contributory factor results mainly from the failure of fishermen to observe fishing regulations. The fishermen are known to manipulate fisheries officials during 'closed season', a period, when fishing is not supposed to be undertaken in specific breeding areas. Over-fishing also occurs when they are too many fishermen fishing in limited waters. Kenya has only 6% of the total lake and the concentration of activity by Kenyan fishermen can easily deplete the stock. As a result some traders use motorised boats to buy fish from the Ugandan islands because Kenya waters do not have sufficient fish.

5.1.1 Fishermen's response

Fishermen have responded to falling fish supplies in different ways. The majority who cannot afford motorised boats, are confined to fishing in nearby waters. In order to make ends meet, these poor fishermen have turned to catching under-size fish, which is against fishing regulations. In order to avoid being apprehended by the fisheries officers at the beach, they fish late in the night and sell their products before sunrise. The actual outcome of a night's work, of course, depends on whether the officials enforce the regulations or settle for a little *chai* (bribe).

Fishermen with more resources have responded to the falling fish supplies by becoming traders. The research identified three such traders based in Uhanya. They have purchased motorised boats to enable them to travel to the Ugandan islands and other Kenyan beaches where they purchase fish for delivery to the IFPs at Uhanya. In addition to motorised boats, such traders need a good crew with good contacts at the sources of fish supply. The tight enforcement and restriction of unlicensed Kenyan boats into Ugandan waters means that traders must have relevant networks and adequate resources, including those for bribing Ugandan authorities. Only one successful trader out of the three was able to send his boats to Uganda on a daily basis. The other two traders only made occasional trips.

5.1.2 Industrial processors' response

The IFPs have addressed the issue of the diminishing fish supply by expanding their catchment area into Tanzania and Uganda. Since these two countries together control 94% of the lake and appear to have better

record of enforcing fishing regulations, their waters still have good supplies of the Nile perch.

Three IFPs are tapping the Tanzanian supply directly by opening plants there that ship semi-processed fish for their Kenyan factories. Others rely on Ugandan fish coming through Uhanya and several other Kenyan beaches, while others have strengthened their ties with Kenyan successful traders and agents. Their ability to source fish from Uganda and Tanzania no doubt reduces the industrial processors' level of concern about falling fish supplies in Kenyan waters.

5.1.3 YFCS's response

Apart from occasionally availing boats for patrolling the lake for use of illegal gear, the co-operative has done little to respond to the falling fish supplies. Members of the co-operative use illegal gear. Co-operative officials watch wrong gear being used and wrong catch being sold within the cluster everyday. Although most (90%) fishermen are members of the co-operative, most of them are not active, while a few (10%) others are not members. This limits the extent to which joint action through the co-operative can be undertaken.

Almost all officials of the co-operative are personally involved in the fish business and often have priorities which clash with their official roles. There is also limited co-operation with the fisheries department, charged with the enforcement of fisheries regulations. Addressing falling fish supplies needs joint efforts of all the parties involved. An effective co-operative would rally its members into self regulation coupled with punitive measures for those who flout regulations.

5.1.4 Fisheries Department response

The Fisheries Department has failed to enforce regulations and otherwise manage the fisheries. Although the department has often attributed its poor performance to lack of required resources, this research suggests that conflicts of interest may be the major problem. Fisheries officials are known to own boats and trade in all types of fish, including under-size fish. This makes them unlikely enforcers of fishing regulations, as demonstrated by the very fact that all along the beach one can see 'baby' perch being openly sun dried, deep fried and smoked.

Officials of the department act in exceptional cases of crisis or when a trader has 'greased their hands' to act in a particular manner. This is more often in cases involving security or theft of gear than in enforcing regulations protecting juvenile perch. Occasionally, fishermen are apprehended for using wrong gear, but the process is never concluded by punishment. Fishermen know that even if they fail to bribe their way through the fisheries officials, they can succeed when they are forwarded to Kenya police for further action.

Actors in Uhanya appear to be unable or unwilling to address the issue of falling fish supplies. Institutions designed to protect fish supplies have failed to do so, largely because of the weakness and corruption of the organisations responsible for enforcement. Rather than get involved with these organisations, both fishermen and processors have avoided the problem by seeking alternative means of procuring fish, thus further weakening an already fragile institutional framework.[9]

5.2 Challenge No. 2: European Union Quality Control Shock

In January 1997, two people died in Spain after eating fish infected with salmonella that had been exported by a Ugandan firm. Spain immediately imposed a ban on NP from East Africa. France, Portugal, and Italy followed, prompting the European Union (EU) to extend the ban to all its member countries. This drastically affected Kenya's export trade.

The EU ban triggered a critical look at the quality of fish from East Africa. The European Union sent inspectors to the three countries to examine the handling and processing of fish from point of capture to the market. The mission revealed the unsanitary conditions and rough handling of fish at the beaches, and the sub-standard factory conditions, including poor methods of disposing of fish skeletons and meat trimmings.

Their recommendations demanded action by all concerned parties including governments of the three countries. Each country selling fish to the EU was required to have one competent authority to approve all fish processors. Furthermore, processors exporting to EU market were required to observe new quality standards, including laboratory testing, production standards, and more sanitary methods of disposing of trimmings and skeletons.

At the beaches fish were required to be cooled in ice-boxes immediately after landing. Fish had to be transported without touching ground and the sanitary conditions along the beach had to meet health requirements. Meeting these standards was a major challenge for Uhanya beach where previously fish had been dragged on the ground, thrown on the cement floor of the co-operative shed, and carelessly tossed into the insulated trucks.

5.2.1 Response to EU shock by IFPs

Since the EU is one of the major markets for NP from East Africa, the ban almost killed the fish processing industry. Although some IFPs took individual initiatives to visit their customers and reassure them of the safety of their products, individual action could not save the industry. The EU viewed fresh water fish coming from East Africa as coming from one source, regardless of country or firm. A single quality failure affected all firms, even those operating under the most stringent quality standards, including ISO 9000.

The shock of the EU ban and subsequent presence of EU inspectors opened the door for information sharing among the IFPs. Each processor wanted to know what requirements were being imposed by the inspectors and whether their factories would be targeted for inspection. Processors with markets in the EU were anxious to collaborate with relevant health authorities. Intense competition gave way to co-operation in the face of an external threat. Individual IFPs had to temporarily put aside their secretive business behaviour in order to address a problem threatening the survival of the industry. In addition to their own horizontal joint action, they also lobbied government and designed strategies of supporting and working with actors located within the beaches. Other processors whose markets were not directly affected, or who had options of finding other markets, did not take any serious action.

Factories attempted to meet the new requirements. They put in place well equipped laboratories, expanded and updated their filleting plants, and in some cases, engaged foreign technical assistance or sent

their personnel abroad for training and consultation. As a result some factories achieved standards even higher than those required by the EU. They re-examined the handling of skeletons and the meat trimmings at the factory level. In response to this, five factories interviewed opted to have contracts with fish meal firms, which are able to take the by-products in bulk, rather than selling them to the small scale traders who purchase small quantities.

The response to the EU requirements did not stop at the factory level. Processors were also required to ensure that the sourcing of fish was appropriate and that quality is maintained once fish are caught. Two processors obtained their own fast-going transport boats with refrigeration facilities. Other processors increased support to their agents to enable them to procure equipment and obtain ice. These responses were aimed at reducing wastage and protecting acceptable fish from contamination.

5.2.2 Joint response: successful trader and an IFP

One of the successful traders joined forces with a large scale processor to save Uhanya beach from the EU quality shock. After consultations with government Ministries and Departments, they constructed a modern, well equipped *banda* for weighing and preliminary treatment of fish.

The modern *banda* consists of a well constructed open shade with an attached office and toilet. The *banda's* sanitation facilities include a small generator pumping water from the lake into a reservoir tank, where it is treated with chlorine. On landing, fish is immediately cleaned and chlorinated using water from the reservoir tank. Fish is then weighed, dipped again and loaded into insulated trucks. The whole exercise of landing, cleaning, weighing and loading fish is completed by uniformed clean personnel in less than three minutes.

The action taken is unusual in that it is vertical, involving actors at different stages of the production - distribution chain. It was also remarkably successful in raising quality standards at Uhanya. Unfortunately, however, the mechanisms for joint action were not institutionalised, and it is very likely that the process will need to begin all over again when the next crisis comes.

6 COLLECTIVE EFFICIENCY AND CLUSTER PERFORMANCE: SOME TENTATIVE CONCLUSIONS

The collective efficiency model suggests that joint action is necessary for enabling a cluster to overcome the challenge that hinders its further development. As we have seen, the Lake Victoria fish cluster has faced two serious challenges in recent years: European Union quality control shock and falling fish supplies. It met the first one by a strategic alliance of successful trader and an IFP. The other remains unresolved, and its effects are especially serious for the Uhanya fishermen who have fewer alternatives than either the successful traders or the IFPs.

6.1 The Politics of Joint Action

The explanation for the success of one type of joint action and the failure of the other seems to lie in the power relations within the cluster. The successful trader and one IFP both have an economic incentive to bring Uhanya Beach up to EU standards, but neither could do it alone. The IFP, like other IFPs is located away from the beach and has little information and contacts at the beach. At the same time, the IFP, including other IFPs do not belong to any association which can address issues affecting the industry and each IFP has to use his/her own strategies in ensuring that their business thrives.

The successful trader's location within the beach enables him to rally local resources, including support from government officials needed for responding to challenges. Both the trader and the IFP are powerful enough to take action without interference from other interested parties. The successful trader dominates trade within the beach, has good contacts with local fishermen and government officials and is able to use his influence, including manipulation to ensure that his business continues to thrive.

The successful trader has the advantage of having linkages with three IFPs and is also a middle man for some fishermen and traders. Although the trader's vertical link with the IFP has direct spill-over effects to other enterprises within the cluster, the unequal power relations make it hard to realise joint action. For example, the successful trader is contented with pricing which he directly negotiates with his IFPs collaborators. He gets higher prices per kilogram of fish than other traders and fishermen. Consequently, it is not in his interest to press for steady and good prices for fish from the cluster.

The situation with falling fish supplies is much more difficult. Addressing this problem requires either strict enforcement of regulations prohibiting the catching of juvenile perch or voluntary measures by fishermen. The government located within the cluster and charged with the responsibility of ensuring sustainable utilisation of the lake resources protects neither the fishermen nor the lake resources. Although rules prohibiting officers from engaging in fishing or fish trading exists, they are not enforced. The resulting serious conflict of interest means that the Fisheries Department is unlikely to deal with falling fish supplies.

On the other hand, voluntary co-operation which could address economic issues facing Lake Victoria fish cluster has remained at the level of welfare concerns. Issues affecting the economic life of the cluster such as depletion and pricing of fish, security in the lake, sanitation along the beach and availing cold storage facilities have not been addressed. The co-operative which would be the most likely vehicle for addressing these issues suffer from the same conflicts of interest as the Fisheries Department and is unlikely to take positive action. This raises questions on the benefits of membership in a collectivity. The attempt of fishermen to form a parallel association and the struggle of the YFCS, and the Ministry of Co-operatives to ensure that the association does not take off is a further demonstration of the effect of politics on joint action.

6.2 Joint Action and the Collective Efficiency Model

Our analysis of cluster performance shows that there was no effective response to falling fish supplies, but strong response to EU quality shock by several key actors. The results seem to uphold and extend the

collective efficiency model. It *upholds* the model in the sense that it underscores the need for joint action in the face of challenges to the cluster's well-being. The joint action between one successful trader and an IFP saved the cluster from an immanent collapse. The findings *extend* the model because they highlight the importance of the institutional framework for enabling effective joint action to take place.

The examination of cluster institutions and organisations indicates that the cluster has fairly weak norms of generalised reciprocity, weak horizontal ties both among fishermen and processors, low density of horizontal networks, a fishermen's co-operative formed 'from above', *ad hoc* vertical joint action between one successful trader and the IFP, and *ad hoc* co-operation among IFPs. The horizontal bilateral links mainly occur at an individual entrepreneur level with hardly any forum bringing fishermen and traders together; while the multilateral links are segmented and are limited in their ability to rally Uhanya actors into action.

Although segmented horizontal networks sustain co-operation within each group, wider co-operation requires networks of civic engagement that cut across social cleavages such as tribe or clan (Putnam 1993: 167). If norms of reciprocity that extend beyond one's immediate family and community are important, then policy can facilitate their formation by encouraging a sense of Kenya as one nation and limiting ethnic, sub-ethnic or racist divides. This study did not focus on ethnicity, but the fact that the catching of the fish is in the hands of African Kenyans and the processing of the fish dominated by Asian Kenyans makes inter-firm learning and organisation more difficult. A full exploration, however, would need to go beyond the African-Asian divide and take into account that fishermen and processors belong to different sub-ethnic communities.

Social capital is exploited in Uhanya through co-operation in form of sub-ethnic welfare associations. The welfare associations are the only forms of insurance available to the poor sole proprietors and their small scale enterprises. They provide security during hard times such as sickness, bereavement and resuscitation of business failure. Although McCormick argues that time is an issue, and small businesses cannot spend much time on activities which do not bring income unless there are immediate benefits (McCormick 1997), membership in welfare associations shows willingness to give time to groups that promise benefits when specific needs arise in the future. Welfare organisations may be of little use to businesses, but they add to the density of networking in the cluster and are viewed as hopeful signs of joint action. Other positive signs include, the attempt to form a new fishermen's association, and the willingness of the IFPs to meet over the EU crisis.

The lack of effective institutions which actors identify with within the cluster has greatly contributed to lack of joint action and resulted in a few actors opting for segmented action which does not benefit the whole cluster. If networks of civic engagement are important, then policy can and should encourage their formation by removing barriers to the formation of organisations, and making the winding up of ineffective organisations easier. Since the fishermen largely do not identify with the existing co-operative, formation of a co-operative they identify with, can contribute to effective joint action in addressing fishing problems.

The YFCS instead of unifying fishermen has divided them into those 'who belong' and those who 'do

not belong', with a few others moving back and forth. The poor performance of the co-operative is partly due to its conceptualisation 'from above', largely by the government under the co-operative movement. Some of the problems which can be attributed to the origin of the organisation include failure of the membership to identify with the organisation and those managing the association to respond to problems affecting the membership. The sabotage of the mooted parallel fishermen's association by YFCS, further demonstrates the typical defensive character of associations without popular grassroots support. The opposing interested parties viewed the establishment of a parallel co-operative as a threat to their power base.

The problems confronting Lake Victoria cluster needs both horizontal and vertical joint action among actors and firms. However, the dynamics of IFPs, successful trader(s) and other interested parties make the future of joint action within the cluster grim. This is because those harnessing economic gains appear more concerned with their own short term gains than with the sustainability of the cluster as a whole. Each individual firm relates to and lobbies actors at the beach, government offices and other relevant individuals and institutions, as they deem beneficial to their immediate interests.

The study has underscored the need for further research on institutions, organisations, and networks. In particular, it points to the need for more empirical work on institutions such as norms of reciprocity and for an investigation into whether other institutions might be equally important in the African context. The findings also suggest a need for further research into organisations and their impact on cluster performance. Finally, studies into the impact of networks both within and beyond the cluster are needed. For example, speaking in the context of patron-client and superior-subordinate relationships, Putnam (1993) asserts that vertical networks cannot sustain social trust and co-operation. Research is needed to determine whether this is also true of the type of trader-processor vertical linkages we have observed in the fish cluster. Also needed is research that specifically examines the relationship of cluster performance to segregated and cross-cutting social networks.

In conclusion, this paper has argued that the lack of effective economic institutions within the Lake Victoria cluster has limited the ability of those relying on the sector to act jointly for the benefit of the sector. For different reasons neither the fishermen nor the IFPs have organised. The field has thus been clear for powerful individual actors to co-operate for their own benefit, essentially short term. All collective actors who should address the issue are evading it and taking alternative options, including further depletion of the resource. Although the IFPs and successful trader(s) have harnessed economic gains within the cluster, they have no institutionalised organ for addressing issues affecting the industry. There is need for institutionalising the co-operation among IFPs, to enable them deal on a more equal footing with foreign buyers and regulatory bodies in the world market.

NOTES

[1] This paper is one of the outputs of the Kenyan portion of a larger project on Collective Efficiency and Small-scale Industry, directed by Hubert Schmitz of the Institute of Development Studies at the University of Sussex, and funded by the Department for International Development, London. Dorothy McCormick, co-ordinator for the Kenyan team, repeatedly provided needed input for shaping this paper. I am also grateful to all research assistants, especially Pascalia Omia and Betty Munyendo for their support during data collection and special gratitude to all fishermen, traders and industrial processors who provided most of the data used in this study. None of the above organisations or individuals can be held responsible for the views expressed in this study.

[2] Data for this paper was gathered using both secondary and primary data. Three methods of primary investigation were used: survey, focus group discussions (FGDs) and interviews of key informants. The survey was used for conducting a census at Uhanya beach and collecting information from fishermen and traders. FGDs were conducted for fishermen and traders, while key informant interviews were held with Government officers, officials of the Co-operative Society, Beach Organization, welfare associations and selected NGOs operating within the cluster.

[3] Full-size Nile Perch weigh above one and a half kilograms and are the only ones purchased by large-scale processors.

[4] Interview with District Officer, Usigu Division.

[5] One year after the field survey, a dissemination forum showed that the ban on grassroots fishermen's association had been lifted, and fishermen were reconstituting themselves. However, further probe revealed that the group is a new brainchild of one of the successful traders and had nothing to do with the earlier banned group. Through the group, the successful trader is able to get more fish and further divert delivery to the co-operative shed.

[6] Our data indicate that when one goes beyond the basic Asian/African dichotomy, the ethnic variations in the seven Kisumu factories that we visited are considerable. The four Asian factories actually represent four different communities, and the three African producers come from two communities.

[7] According to Abila and Jansen (1997), some fish factories can process a much higher daily tonnage but they confirm the substantial underutilisation of that capacity.

[8] The trader dominates the supply of fish in Uhanya. The entrepreneur has 8 motorised boats and buys fish cheaply from Ugandan and Kenyan Islands and other beaches. He has 50 employees and 40 part time assistants. He has formal arrangement with 3 IFP who supply him with ice and have assisted him in constructing a *banda* in line with EU requirements.

[9] A more historical and comprehensive analysis is provided by Geheb (1997).

REFERENCES

Abila, R.O and Jansen, E.G., 1997, 'From Local To Global Markets': The Fish Exporting and Fishmeal Industries of Lake Victoria - Structure, Strategies and Socio-economic Impacts in Kenya'. IUCN: The World Conservation Union. Report No. 2. October.

Akatch, S.O., 1996, **Dying Lake Victoria: A Community Based Prevention Programme**, Nairobi: Initiatives Publishers.

Andersen, A.M., 1961, 'Further Observations Concerning the Proposed Introduction of Nile Perch in Lake Victoria', **East African Agricultural and Forestry Journal**, 26(4) pp. 195 - 201

Barr, A., 1998, 'Do SMEs Network for Growth?' Paper presented at the Centre of African Studies Conference on Enterprise in Africa: Between Poverty and Growth', May 26th - 27th

Bazan, L., and Schmitz, H., 1996, 'Social Capital and Export Growth: An Industrial Community in Southern Brazil', IDS Discussion Paper No. 361, Sussex: Institute of Development Studies

Coleman, J.S., 1990, **Foundations of Social Theory**. Cambridge: Harvard University Press

Danner H., 1997, 'Strengthening The Export Trade Between Kenya and Germany'. Nairobi: Hanns-Seidel-Stiftung

Esman, M.J, 1972, 'Some Issues in Institution Building' in Thomas, D. W., Pottor, H.R., Miller, W.R., Aveni, A.F., (eds.) 1972. **Institutional Building: A Model for Applied Social Change**. Massachusetts: Schankman Publishing Company

Fryer, G., 1960, 'Concerning the Proposed Introduction of Nile perch in Lake Victoria', **The East African Agricultural and Forestry Journal**, April, 1960

Geheb, K., 1997, 'The Regulators and Regulated: Fisheries Management Options and Dynamics in Kenya's Lake Victoria Fishery', Ph.D. Thesis, University of Sussex, School of African and Asian Studies

Gibbon, P., 1997, 'Of Saviours and Punks: The Political Economy of the Nile Perch Marketing Chain in Tanzania', CDR Working Paper 97.3, Copenhagen: Centre for Development Research

ILO, 1988, 'Fishermen's Conditions of Work and Life', Geneva: International Labour Organisation

Jansen E.G., 1997, 'Rich Fisheries - Poor Fisherfolk: Some Preliminary Observations About Effects of Trade and Aid in the Lake Victoria Fisheries', Report No. 1. September, IUCN: The World Conservation Union

Kenya, Republic of, 1994, **Siaya District Development Plan** 1994/96, Nairobi: Government Printer

Kenya, Republic of, 1995, **Statistical Abstract**, Nairobi: Government Printer

Kenya, Republic of, 1997, **Development Plan 1997 - 2002**, Nairobi: Government Printer.

Kenya, Republic of, 1989, **Kenya Gazette Supplement** Acts 1989, No. 62, Acts No. 3 1989, Nairobi: Government Printer

Knorringa, P., 1995, 'Economics of Collaboration in Producer-Trader Relations: Transaction Regimes Between Market and Hierarchy in the Agra Footwear Cluster, India', Ph.D. Thesis, University of Amsterdam, Amsterdam

Locke, R., 1995, **Remaking the Italian Economy**. Cornell: Cornell University Press

Marshall, A., 1890, **Principles of Economics** London: Macmillan

McCormick, D., 1997, 'Enterprise Clusters in Africa', Paper prepared for Conference on 'Collective Efficiency', Sussex: Institute of Development Studies, UK, 15 April 1997

McCormick, D., 1998, 'Enterprise Clusters in Africa: From Collective Efficiency to Industrialisation', Final Report on Research Project on 'Collective Efficiency', Nairobi: University of Nairobi, Institute for Development Studies

Mishan, E.J., 1971, 'The Post-war Literature on Externalities: an Interpretative Essay' in **Journal of Economic Literature**, Vol 9 No 1: 1-28

Mitullah, W.V., 1996, 'Collective Efficiency in the Fish Industry: Lessons From Uhanya Census', Institute for Development Studies Working Paper No. 509, Nairobi: University of Nairobi

Nadvi, K., 1996, 'Small Firm Industrial Districts in Pakistan', Doctoral Thesis, Sussex: Institute of Development Studies, University of Sussex

North, D.C., 1990, **Institutions, Institutional Change and Economic Performance**, Cambridge: Cambridge University Press

Okedi, J., 1975, 'Fishery Resources: Their Exploitation, Management and Conservation in Africa in Development and East African Environment', Discussion Paper No. 15, Nairobi: Institute for Development Studies, University of Nairobi

Olson, M., 1965, **The Logic of Collective Action: Public Goods and the Theory of Groups**, Massachusetts: Harvard University Press

O'Riordan, B., 1996, '**An Assessment of the Current Status of Lake Victoria Fisheries**', Intermediate Technology Development Group, Rugby

Platteau Jean-Philippe, 1989, 'The Dynamics of Fisheries Development in Developing Countries: An Overview', **Development and Change** Vol 20 No 4 October

Porter, M., 1990, **The Competitive Advantage of Nations**, New York: The Free Press

Putnam, R.D., 1993, **Making Democracy Work: Civic Traditions in Modern Italy** Princeton: Princeton University Press

Rabellotti, R. (1997) **External Economies and Co-operation in Industrial Districts: A comparison of Italy and Mexico** Macmillan, London.

Schmitz, H., 1995, 'Collective Efficiency: Growth Path for Small-scale Industry', **Journal of Development Studies**, Vol 23 No 1 April: 529-566.

Schmitz, H., 1997, 'Collective Efficiency and Increasing Returns', Working Paper No 50, Sussex: Institute of Development Studies

Thomas, D. W., Pottor, H.R., Miller, W.R., Aveni, A.F., 1972, **Institutional Building: A Model for Applied Social Change**, Massachusetts: Schankman Publishing Company